

United States Department of Agriculture Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Sandy (Sy) 15-19” Black Hills Precipitation Zone,

Site ID: 061XY150WY

Major Land Resource Area: 61 – Black Hills Foot Slopes

Physiographic Features

This site occurs on nearly level to 50% slopes.

Landform: Alluvial fans, hillsides, plateaus, ridges & stream terraces

Aspect: N/A

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	3500	5000
Slope (percent):	0	30
Water Table Depth (inches):	None within 60 inches	
Flooding:		
Frequency:	None	None
Duration:	None	None
Ponding:		
Depth (inches):	0	0
Frequency:	None	None
Duration:	None	None
Runoff Class:	negligible	high

Climatic features

Annual precipitation ranges from 15-19 inches per year. Wide fluctuations may occur in yearly precipitation and result in more dry years than those with more than normal precipitation. Temperatures show a wide range between summer and winter and between daily maximums and minimums. This is predominantly due to the high elevation and dry air, which permits rapid incoming and outgoing radiation. Cold air outbreaks in winter move rapidly from northwest to southeast and account for extreme minimum temperatures. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring.

Strong winds are less frequent than over other areas of Wyoming. Occasional storms, however, can bring brief periods of high winds with gusts exceeding 50 mph.

Growth of native cool season plants begins about April 1 and continues to about July 1. Native warm season plants begin about May 15 and continue to about August 15. Fall green-up may occur in September and last through October.

The following information is from the “Devils Tower 2” climate station:

Site Type: Rangeland
MLRA: 61 – Black Hills Foot Slopes

Sandy 15-19" P.Z.
R061XY150WY

	<u>Minimum</u>	<u>Maximum</u>	<u>5 yrs. out of 10 between</u>
Frost-free period (days) (32°F):	58	93	June 6 – September 7
Freeze-free period (days) (28°F):	95	125	May 18 – September 20
Annual Precipitation (inches):	14.81	20.17	

Mean annual precipitation: 17.66 inches

Mean annual air temperature: 44.4°F (28.6°F Avg. Min. to 60.1°F Avg. Max.)

For detailed information visit the Natural Resources Conservation Service National Water and Climate Center at <http://www.wcc.nrcs.usda.gov/> website. Other climate station(s) representative of this precipitation zone include "Hulett" and "Sundance".

Influencing Water Features

Wetland Description:	<u>System</u>	<u>Subsystem</u>	<u>Class</u>	<u>Sub-class</u>
None	None	None	None	None

Stream Type: None

Representative Soil Features

The soils of this site are moderately deep (greater than 20" to bedrock) to very deep, well-drained soils that formed in alluvium or alluvium over residuum. These soils have moderate, moderately rapid, or rapid permeability. The surface soil will vary from 3 to 6 inches deep and have one of the following textures: fine sandy loam, sandy loam, or loamy very fine sand. Coarser topsoils may be included if underlain by finer textured subsoils. Layers of the soil most influential to the plant community vary from 3 to 6 inches thick.

Parent Material Kind: alluvium, eolian deposits, residuum

Parent Material Origin: sandstone, unspecified

Surface Texture: fine sandy loam, sandy loam

Surface Texture Modifier: none

Subsurface Texture Group: sandy loam

Surface Fragments ≤ 3" (% Cover): 0

Surface Fragments > 3" (%Cover): 0

Subsurface Fragments ≤ 3" (% Volume): 0

Subsurface Fragments > 3" (% Volume): 0

	<u>Minimum</u>	<u>Maximum</u>
Drainage Class:	well drained	excessively well drained
Permeability Class:	moderately rapid	rapid
Depth (inches):	20	>60
Electrical Conductivity (mmhos/cm) ≤20":	0	4
Sodium Absorption Ratio ≤20":	0	5
Soil Reaction (1:1 Water) ≤20":	6.6	8.4
Soil Reaction (0.1M CaCl2) ≤20":	NA	NA
Available Water Capacity (inches) ≤30":	2	5.1
Calcium Carbonate Equivalent (percent) ≤20":	0	5

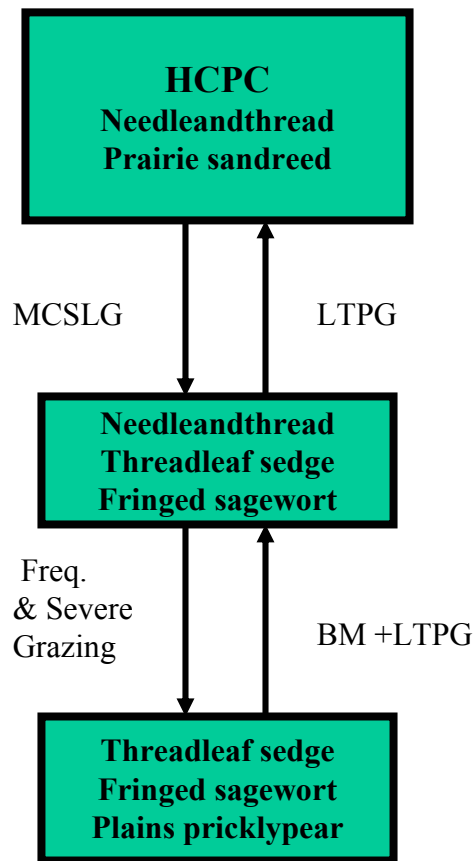
Plant Communities

Ecological Dynamics of the Site:

As this site deteriorates, species such as threadleaf sedge, needleandthread, and silver sagebrush will increase. Broom snakeweed may invade. Grasses such as prairie sandreed and Indian ricegrass will decrease in frequency and production.

The Historic Climax Plant Community (description follows the plant community diagram) has been determined by study of rangeland relic areas, or areas protected from excessive disturbance. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures, and historical accounts have also been used.

The following is a State and Transition Model Diagram that illustrates the common plant communities (states) that can occur on the site and the transitions between these communities. The ecological processes will be discussed in more detail in the plant community narratives following the diagram.



BM - Brush Management (fire, chemical, mechanical)

Freq. & Severe Grazing - Frequent and Severe Utilization of the Cool-season Mid-grasses during the Growing Season

GLMT - Grazing Land Mechanical Treatment

LTPG - Long-term Prescribed Grazing

MCSLG - Moderate, Continuous Season-long Grazing

NU, NF - No Use and No Fire

PG - Prescribed Grazing (proper stocking rates with adequate recovery periods during the growing season)

VLTPG - Very Long-term Prescribed Grazing (could possibly take generations)

Na - found adjacent to a saline site

Plant Community Composition and Group Annual Production
Reference Plant Community (HCPC)

COMMON NAME/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Annual Production (Normal Year)		
			Total: 2200		
			Group	lbs./acre	% Comp.
GRASSES AND GRASS-LIKES					
GRASSES/GRASSLIKES					
Prairie sandreed	Calamovilfa longifolia	CALO	1	330 - 660	15 - 30
Needleandthread	Hesperostipa comata	HECO26	2	220 - 440	10 - 20
Sand bluestem	Andropogon hallii	ANHA	3	110 - 220	5 - 10
Blue wildrye	Elymus glaucus	ELGL	4	110 - 220	5 - 10
Columbia needlegrass	Achnatherum nelsonii	ACNE9	5	110 - 220	5 - 10
Richardson's needlegrass	Achnatherum richardsonii	ACRI8	6	110 - 220	5 - 10
Indian ricegrass	Achnatherum hymenoides	ACHY	7	110 - 220	5 - 10
Western wheatgrass	Pascopyrum smithii	PASM	8	110 - 220	5 - 10
MISC. GRASSES/GRASSLIKES			9	220 - 440	10 - 20
Blue grama	Bouteloua gracilis	BOGR2	9	0 - 110	0 - 5
Canby bluegrass	Poa canbyi (syn. P. secunda)	POCA (POSE)	9	0 - 110	0 - 5
Little bluestem	Schizachyrium scoparium	SCSC	9	0 - 110	0 - 5
Needleleaf sedge	Carex duriuscula	CADU6	9	0 - 110	0 - 5
Onespike oatgrass	Danthonia unispicata	DAUN	9	0 - 110	0 - 5
Prairie junegrass	Koeleria macrantha	KOMA	9	0 - 110	0 - 5
Pumpelly bromegrass	Bromus inermis spp.pumpellianus	BRINP5	9	0 - 110	0 - 5
Sand dropseed	Sporobolus cryptandrus	SPCR	9	0 - 110	0 - 5
Threadleaf sedge	Carex filifolia	CAFI	9	0 - 110	0 - 5
other perennial grasses (native)		2GP	9	0 - 110	0 - 5
FORBS			10	110 - 330	5 - 15
American vetch	Vicia americana	VIAM	10	0 - 110	0 - 5
Cudweed sagewort	Artemisia ludoviciana	ARLU	10	0 - 110	0 - 5
fringed sagewort	Artemisia frigida	ARFR4	10	0 - 110	0 - 5
Prairie coneflower	Ratibida columnifera	RACO3	10	0 - 110	0 - 5
Penstemon	Penstemon spp.	PENST	10	0 - 110	0 - 5
Prairieclovers	Dalea spp.	DALEA	10	0 - 110	0 - 5
Silverleaf scurfpea	Pedimelum argophyllum	PEAR6	10	0 - 110	0 - 5
Western yarrow	Achillea lanulosa	ACHIL	10	0 - 110	0 - 5
Yucca	Yucca spp.	YUCCA	10	0 - 110	0 - 5
other perennial forbs (native)		2FP	10	0 - 110	0 - 5
TREES/SHRUBS				0 - 220	0 - 10
Silver sagebrush	Artemisia cana	ARCAC5	11	0 - 110	0 - 5
Snowberry	Symphoricarpus occidentalis	SYOC	12	0 - 110	0 - 5
Wild rose	Rosa woodsii var. woodsii	ROWOW	13	0 - 110	0 - 5
other shrubs & half shrubs (native)		2SHRUB	14	0 - 110	0 - 5

This list of plants and their relative proportions are based on near normal years. Fluctuations in species composition and relative production may change from year to year dependent upon precipitation or other climatic factors.

Plant Community Narratives

Following are the narratives for each of the described plant communities. These plant communities may not represent every possibility, but they probably are the most prevalent and repeatable plant communities. The plant composition tables shown above have been developed from the best available knowledge at the time of this revision. As more data is collected, some of these plant communities may be revised or removed, and new ones may be added. None of these plant communities should necessarily be thought of as “Desired Plant Communities”. According to the USDA NRCS National Range and Pasture Handbook, Desired Plant Communities (DPC’s) will be determined by the decision-makers and will meet minimum quality criteria established by the NRCS. The main purpose for including any description of a plant community here is to capture the current knowledge and experience at the time of this revision.

Needleandthread/Prairie sandreed/ Plant Community

The interpretive plant community for this site is the Historic Climax Plant Community (HCPC). This state evolved with grazing by large herbivores and is well suited for grazing by domestic livestock. Potential vegetation is about 80% grasses or grass-like plants, 10% forbs, and 10% woody plants. The state is a mix of warm and cool season midgrasses. The major grasses include needleandthread, prairie sandreed, little bluestem, and Indian ricegrass. Other grasses occurring on the state include rhizomatous wheatgrasses, blue grama, and threadleaf sedge. Silver sagebrush is a conspicuous element of this state and occurs in a mosaic pattern.

The total annual production (air-dry weight) of this state is about 2200 pounds per acre, but it can range from about 1500 lbs/acre in unfavorable years to about 3000 lbs/acre in above average years.

The following is the growth curve of this plant community expected during a normal year:

Growth curve number: WY1601

Growth curve name: 15-19BL, Upland Sites

Growth curve description: All Upland Sites

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	20	40	15	5	10	5	0	0

(Monthly percentages of total annual growth)

The state is stable and well adapted to the Black Hills Foot Slopes climatic conditions. The diversity in plant species allows for high drought resistance. This is a sustainable plant community (site/soil stability, watershed function, and biologic integrity).

Transitions or pathways leading to other plant communities are as follows:

- Moderate, Continuous Season-Long grazing will convert the plant community to the *Needleandthread/ Threadleaf sedge/ Fringed sagewort Plant Community*.
- Frequent and Severe grazing will convert the plant community to the *Threadleaf sedge/ Fringed sagewort/Plains Pricklypear Plant Community*.

Needleandthread/Threadleaf sedge/Fringed sagewort Plant Community

This plant community is the result of moderate season long grazing. The understory of grass includes needleandthread, threadleaf sedge, and prairie junegrass. When compared to the Historic Climax Plant Community, prairie sandreed and Indian ricegrass have decreased. Threadleaf sedge, needleandthread and fringed sagewort have increased. Broom snakeweed has invaded. This

community is well suited to grazing by both domestic livestock and wildlife, during the spring, summer and fall.

The total annual production (air-dry weight) of this state is about 1000 pounds per acre, but it can range from about 800 lbs/acre in unfavorable years to about 1200 lbs/acre in above average years.

The following is the growth curve of this plant community expected during a normal year:

Growth curve number: WY1601

Growth curve name: 15-19BL, Upland Sites

Growth curve description: All Upland Sites

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	20	40	15	5	10	5	0	0

(Monthly percentages of total annual growth)

The communities' soil, biotic integrity and watershed is intact, although more than normal runoff may occur due to the sod forming vegetation.

Transitional pathways leading to other plant communities are as follows:

- Long-Term Prescribed grazing will return this state to near *Historic Climax Plant Community* condition. The sod forming nature of threadleaf sedge and needleandthread will make the transition to *Historic Climax Plant Community* difficult.
- Frequent and Severe grazing will convert this state to the *Threadleaf sedge/Fringed sagewort/Plains Pricklypear Plant Community*.

Threadleaf sedge/ Fringed sagewort/ Plains Pricklypear Plant Community

This plant community is the result of frequent and severe grazing. It is dominated by a sod of threadleaf sedge and needleandthread. Pricklypear cactus can become dense enough so that livestock cannot graze forage growing within the cactus clumps. When the historic climax plant community is replaced by sod forming communities, grass production is reduced.

The total annual production (air-dry weight) of this state is about 800 pounds per acre, but it can range from about 600 lbs/acre in unfavorable years to about 1000 lbs/acre in above average years.

The following is the growth curve of this plant community expected during a normal year:

Growth curve number: WY1601

Growth curve name: 15-19BL, Upland Sites

Growth curve description: All Upland Sites

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	20	40	15	5	10	5	0	0

(Monthly percentages of total annual growth)

The soil is generally well protected on this state. The biotic integrity may be reduced due to low vegetative production. The sod formed by these grasses is resistant to water infiltration. While this sod protects the state, off-site areas are affected by excessive runoff that may cause gully erosion. This sod is resistant to change and may require practices such as long-term proper grazing use to return to a mid grass community.

Transitional pathways leading to other plant communities are as follows:

- Long-term Prescribed grazing with fringed sagewort control will return this plant community to near *Historic Climax Plant Community*.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

Historic Climax Plant Community: The predominance of grasses in this plant community favors grazers and mixed-feeders, such as bison, elk, and antelope. Suitable thermal and escape cover for deer may be limited due to the low quantities of woody plants. However, topographical variations could provide some escape cover. When found adjacent to sagebrush dominated states, this plant community may provide brood rearing/foraging areas for sage grouse, as well as lek sites. Other birds that would frequent this plant community include Western meadowlarks, horned larks, and golden eagles. Many grassland obligate small mammals would occur here.

Needleandthread/ Threadleaf sedge/Fringed sagewort: These communities provide foraging for antelope and other grazers. They may be used as a foraging site by sage grouse if proximal to woody cover.

Threadleaf sedge/Fringed sagewort/Plains Pricklypear: These communities provide limited grazing to antelope and other herbivores due to low production. They may be used as a foraging site by sage grouse if proximal to woody cover.

Animal Preferences (Quarterly - 1,2,3,4) for commonly occurring plants in MLRA 61, 15-19 inch Black Hills

COMMON NAME/	SCIENTIFIC NAME	SCI. SYMBOL	Cattle	Sheep	Horses	Mule Deer	Antelope
GRASSES/GRASSLIKES							
alkali bluegrass	Poa secunda ssp. juncifolia	POSEJ	DDDD	PPPP	DDDD	PPPP	PPPP
alkali cordgrass	Spartina gracilis	SPGR	DDDD	UUUU	DDDD	UUUU	UUUU
alkali sacaton	Sporobolus airoides	SPA1	PPPP	DDDD	PPPP	DDDD	DDDD
bearded wheatgrass	Elymus caninus	ELCA	PPPP	DDDD	PPPP	DDDD	DDDD
Big bluegrass	Poa ampla (syn. To Poa secunda)	POAM (POSE)	PPPP	PPPP	PPPP	PPPP	PPPP
big bluestem	Andropogon gerardii	ANGE	PPPP	PPPP	PPPP	DDDD	DDDD
blue grama	Bouteloua gracilis	BOGR2	DDDD	DDDD	DDDD	DDDD	DDDD
Blue wildrye	Elymus glaucus	ELGL	DDDD	DDDD	DDDD	DDDD	DDDD
bluebunch wheatgrass	Pseudoroegneria spicata	PSSP6	PPPP	PPPP	PPPP	DDDD	DDDD
bluejoint reedgrass	Calamagrostis canadensis	CACA4	PPPP	DDDD	PPPP	UUUU	UUUU
buffalograss	Buchloe dactyloides	BUDA	DDDD	DDDD	DDDD	DDDD	DDDD
Canada wildrye	Elymus canadensis	ELCA4	PPPP	PPPP	PPPP	DDDD	DDDD
Canby bluegrass	Poa canbyi (syn. to Poa secunda)	POCA (POSE)	PPPP	PPPP	PPPP	PPPP	PPPP
Columbia needlegrass	Achnatherum nelsonii	ACNE9	PPPP	PPPP	DDDD	DDDD	DDDD
Cusick's bluegrass	Poa cusickii	POCU3	PPPP	PPPP	PPPP	PPPP	PPPP
fowl bluegrass	Poa palustris	POPA2	DDDD	DDDD	DDDD	UUUU	UUUU
green needlegrass	Nassella viridula	NAV14	PPPP	PPPP	PPPP	PPPP	PPPP
hairy grama	Bouteloua hirsuta	BOH12	DDDD	DDDD	DDDD	DDDD	DDDD
Indian ricegrass	Achnatherum hymenoides	ACHY	PPPP	PPPP	PPPP	PPPP	PPPP
inland saltgrass	Distichlis spicata	DISP	UUUU	UUUU	UUUU	UUUU	UUUU
inland sedge	Carex interior	CAIN11	DDDD	DDDD	DDDD	UUUU	UUUU
little bluestem	Schizachyrium scoparium	SCSC	PPPP	PPPP	PPPP	DDDD	DDDD
mat muhly	Muhlenbergia richardsonis	MURI	UUUU	UUUU	UUUU	UUUU	UUUU
Nebraska sedge	Carex nebraskensis	CANE2	PPPP	PPPP	PPPP	DDDD	DDDD
needleandthread	Hesperostipa comata	HECO26	PPPP	PPPP	PPPP	PPPP	PPPP
needleleaf sedge	Carex duriuscula	CADU6	UUUU	UUUU	UUUU	UUUU	UUUU
northern reedgrass	Calamagrostis stricta	CAST13	PPPP	DDDD	PPPP	UUUU	UUUU
Nuttall's alkaligrass	Puccinellia nuttalliana	PUNU2	PPPP	PPPP	PPPP	PPPP	PPPP
plains reedgrass	Calamagrostis montanensis	CAMO	DDDD	DDDD	DDDD	DDDD	DDDD
prairie cordgrass	Spartina pectinata	SPPE	PPPP	DDDD	PPPP	UUUU	UUUU
prairie junegrass	Koeleria macrantha	KOMA	DDDD	DDDD	DDDD	DDDD	DDDD
prairie sandreed	Calamovilfa longifolia	CALO	PPPP	DDDD	PPPP	UUUU	UUUU
Pumpelly brome	Bromus inermis spp. pumpellianus	BRIMP5	PPPP	PPPP	DDDD	DDDD	UUUU
Richardson's needlegrass	Achnatherum richardsonii	ACRI8	PPPP	DDDD	DDDD	DDDD	DDDD
sand bluestem	Andropogon halli	ANHA	PPPP	DDDD	PPPP	UUUU	UUUU
sand dropseed	Sporobolus cryptandrus	SPCR	DDDD	DDDD	DDDD	UUUU	UUUU
Sandberg bluegrass	Poa secunda	POSE	DDDD	DDDD	DDDD	DDDD	DDDD
sideoats grama	Bouteloua curtipendula	BOCU	PPPP	PPPP	PPPP	DDDD	UUUU
slender wheatgrass	Elymus trachycaulus	ELTR7	PPPP	DDDD	PPPP	DDDD	DDDD
spike oatgrass	Helictotrichon hookeri	HEHO8	PPPP	DDDD	PPPP	DDDD	DDDD
spike sedge	Carex nardina	CANA2	DDDD	DDDD	DDDD	UUUU	UUUU
Spikescue	Leucopoa kingii	LEK12	PPPP	DDDD	PPPP	PPPP	DDDD
stonehills (plains) muhly	Muhlenbergia cuspidata	MUCU3	UUUU	UUUU	UUUU	UUUU	UUUU
switchgrass	Panicum virgatum	PAVI2	UDPD	UDDU	UDPD	UUUU	UUUU
thickspike wheatgrass	Elymus lanceolatus	ELLAL	DDDD	DDDD	DDDD	DDDD	DDDD
threadleaf sedge	Carex filifolia	CAFI	DDDD	DDDD	DDDD	DDDD	PPPP
threeawn	Aristida spp.	ARIST	NNNN	NNNN	NNNN	NNNN	NNNN
Timber oatgrass (danthonia)	Danthonia intermedia	DAIN	DDDD	DDDD	DDDD	UUUU	UUUU
tufted hairgrass	Deschampsia caespitosa	DECA18	PPPP	PPPP	PPPP	DDDD	DDDD
western wheatgrass	Pascopyrum smithii	PASM	DDDD	DDDD	DDDD	DDDD	DDDD
FORBS							
alkali (purs) seepweed	Suaeda calceoliformis	SUCA2	NNNN	NNNN	NNNN	NNNN	NNNN
American licorice	Glycyrrhiza lepidota	GLLE3	UUUU	UUUU	UUUU	UUUU	UUUU
American vetch	Vicia americana	VIAM	PPPP	PPPP	PPPP	PPPP	PPPP
arrowgrass	Triglochin spp.	TRIGL	T	T	T	T	T
biscuitroots	Lomatium spp.	LOMAT	DDDD	DDDD	UUUU	DDDD	DDDD
bluebells	Mertensia	MERTE	DDDD	PPPP	DDDD	DDDD	DDDD
blue-eyed grass	Sisyrinchium spp.	SISYR	DDDD	PPPP	DDDD	DDDD	DDDD
breadroot scurfspea	Pediomelum esculentum	PEES	DDDD	DDDD	DDDD	DDDD	DDDD
cattail, broad-leaf	Typha latifolia	TYLA	DDDD	UUUU	DDDD	UUUU	UUUU
cattail, narrow-leaf	Typha angustifolia	TYAN	DDDD	UUUU	DDDD	UUUU	UUUU
common comandra (toadflax)	Comandra umbellata	COUMP	UUUU	UUUU	UUUU	UUUU	UUUU
cutweed sawewort	Artemisia ludoviciana	ARLU	UUUU	UUUU	UUUU	UUUU	UUUU
deathcamas	Zigadenus venenosus	ZIVE	TTTT	TTTT	TTTT	TTTT	TTTT
dotted gayfeather	Liatris punctata	LIPU	UPPU	UPPU	UPPU	UPPU	UPPU
erigeron (fleabanes)	Erigeron spp.	ERIGE2	UUUU	UUUU	UUUU	UUUU	UUUU
erigonum (buckwheat)	Eriogonum spp.	ERIOG	UUUU	DDDD	UUUU	UUUU	UUUU
fringed sawewort	Artemisia frigida	ARFR4	UUUU	UUUU	UUUU	UUUU	UUUU
goldenrod	Oligoneuron	OLIGO3	UUUU	UUUU	UUUU	UUUU	UUUU
green sawewort	Artemisia dracuncul	ARDR4	UUUU	UUUU	UUUU	UUUU	UUUU
gromwell	Buglossoides arvensis	BUAR3	UUUU	UUUU	UUUU	UUUU	UUUU
groundsel	Tephrosia	TEPHR3	UUUU	UUUU	UUUU	UUUU	UUUU
hawksbeard	Crepis acuminata	CRAC2	UUUU	PPPP	UUUU	DDDD	DDDD
horsetails	Equisetum spp.	EQUI3	UUUU	UUUU	UUUU	UUUU	UUUU
iris	Iris spp.	IRIS	UUUU	UUUU	UUUU	UUUU	UUUU
mountain thermopsis	Thermopsis divaricarpa	THDI4	UUUU	UUUU	UUUU	UUUU	UUUU
Nailworts	Paronychia spp.	PARON	UUUU	UUUU	UUUU	UUUU	UUUU
penstemons	Penstemon spp.	PENST	PPPP	PPPP	PPPP	PPPP	PPPP
prairie coneflower	Ratibida columnifera	RACO3	DDDD	PPPP	DDDD	PPPP	PPPP
prairie clovers	Dalea spp.	DALEA	UPPU	UPPU	UPPU	UPPU	UPPU
scurfspeas	Psoraleum spp.	PSORA2	NNNN	UUUU	NNNN	UUUU	UUUU
starwort	Callitriche spp.	CALL16	UUUU	UUUU	UUUU	UUUU	UUUU
stonecrop	Sedum spp.	SEDUM	UUUU	UUUU	UUUU	UUUU	UUUU
twogrooved milkvetch	Astragalus bisulcatus	ASBI2	T	T	T	T	T
violets	Viola spp.	VIOLA	DDDD	DDDD	DDDD	DDDD	DDDD
water hemlocks	Cicuta spp.	CICUT	T	T	T	T	T
western virginsbower	Clematis occidentalis	CLOC2	UUUU	DDDD	UUUU	DDDD	DDDD
western wallflower	Erysimum capitatum	ERCAC	DDDD	DDDD	DDDD	DDDD	DDDD
western yarrow	Achillea lanulosa	ACHIL	UUUU	UUUU	UUUU	UUUU	UUUU
wild onion	Allium textile	ALTE	DDDD	DDDD	DDDD	DDDD	DDDD
TREES, SHRUBS & HALF-SHRUBS							
big sagebrush	Artemisia tridentata	ARTR2	UUUU	DDDD	UUUU	DDDD	DDDD
black greasewood	Sarcobatus vermiculatus	SAVE4	DDDD	DDDD	UUUU	DDDD	DDDD
green rabbitbrush	Chrysothamnus viscidiflorus	CHVI8	DDDD	DDDD	DDDD	DDDD	DDDD
plains cottonwood (sprouts)	Populus deltoides	PODEM	DDDD	DDDD	DDDD	DDDD	DDDD
rubber rabbitbrush	Encarnia nauseosa	ERNA10	UUUU	DDDD	UUUU	DDDD	DDDD
silver sagebrush	Artemisia cana	ARCA5	DDDD	DDDD	DDDD	PPPP	PPPP
skunkbush sumac	Rhus trilobata	RHTR	DDDD	DDDD	DDDD	DDDD	DDDD
western snowberry	Symphoricarpos occidentalis	SYOC	UUUU	UUUU	UUUU	DDDD	UUUU
wildrose	Rosa woodsii var. woodsii	ROWOW	DDDD	DDDD	UUUU	DDDD	DDDD
willows	Salix L.	SALIX	PPPP	PPPP	DDDD	PPPP	UUUU
winterfat	Krascheninnikovia lanata	KRLA2	PPPP	PPPP	PPPP	PPPP	PPPP
yucca	Yucca glauca	YUGL	DDDD	DDDD	DDDD	DDDD	DDDD

N = not used; U = undesirable; D = desirable; P = preferred; T = toxic

Animal Community – Grazing Interpretations

The following table lists suggested stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity. If distribution problems occur, stocking rates must be reduced to maintain plant health and vigor.

Plant Community	Production (Lbs/acre)	Carrying Capacity* (AUM/ac)
Historic Climax Plant Community	1500-3000	.5
Needleandthread/Threadleaf sedge/Fringed sagewort	800-1200	.4
Threadleaf sedge/Fringed sagewort/Plains Pricklypear	600-1000	.25

* - Continuous, season-long grazing by cattle under average growing conditions.

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage for cattle, sheep, or horses. During the dormant period, the forage for livestock use needs to be supplemented with protein because the quality does not meet minimum livestock requirements.

Hydrology Functions

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group B, with localized areas in hydrologic group C. Infiltration potential for this site varies from moderately rapid to rapid depending on soil hydrologic group and ground cover. Runoff varies from low to moderate. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where short-grasses form a strong sod and dominate the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to Part 630, NRCS National Engineering Handbook for detailed hydrology information).

Rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present in association with bunchgrasses. Litter typically falls in place, and signs of movement are not common. Chemical and physical crusts are rare to non-existent. Cryptogamic crusts are present, but only cover 1-2% of the soil surface.

Recreational Uses

This site provides hunting opportunities for upland game species. The wide variety of plants which bloom from spring until fall have an esthetic value that appeals to visitors.

Site Type: Rangeland
MLRA: 61 – Black Hills Foot Slopes

**Sandy 15-19” P.Z.
R061XY150WY**

Wood Products

No appreciable wood products are present on the site.

Other Products

None noted.

Supporting Information

Associated Sites

Shallow Sandy 061XY166WY

Similar Sites

(058BY250WY) – Sandy 15-17” Northern Plains P.Z. has lower production.

Inventory Data References (narrative)

Information presented here has been derived from NRCS clipping data and other inventory data. Field observations from range trained personnel were also used. Other sources used as references include: USDA NRCS Water and Climate Center, USDA NRCS National Range and Pasture Handbook, and USDA NRCS Soil Surveys from various counties.

Inventory Data References

<u>Data Source</u>	<u>Number of Records</u>	<u>Sample Period</u>	<u>State</u>	<u>County</u>
SCS-RANGE-417		1971-1994	WY	Weston & others
Ocular estimates		1990-1999	WY	Weston & others

State Correlation

This site occurs entirely within Wyoming.

Type Locality

Field Offices

Newcastle, Sundance

Relationship to Other Established Classifications

Other References

Site Description Approval

State Range Management Specialist

Date

Ecological Reference Worksheet

Author(s)/participant(s): _____
Contact for lead author: _____ **Reference site used? Yes/No**
Date: 4/05 **MLRA:** 61 **Ecological Site:** R061XY150WY Sandy (Sy) 15-19"BL

_____ This *must* be verified based on soils and climate (see Ecological Site Description). Current plant community *cannot* be used to identify the ecological site.

Indicators. For each indicator, describe the potential for the site. Where possible, (1) use numbers, (2) include expected range of values for above- and below-average years for **each** community within the reference state, when appropriate & (3) cite data. Continue descriptions on separate sheet.

1. Number and extent of rills: Rills should not be present

2. Presence of water flow patterns: Barely observable

3. Number and height of erosional pedestals or terracettes: Essentially non-existent

4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are *not* bare ground): Bare ground is 15-25% occurring in small areas throughout site

5. Number of gullies and erosion associated with gullies: Active gullies should not be present

6. Extent of wind scoured, blowouts and/or depositional areas: None

7. Amount of litter movement (describe size and distance expected to travel): Little to no plant litter movement. Plant litter remains in place and is not moved by erosional forces.

8. Soil surface (top few mm) resistance to erosion (stability values are averages – most sites will show a range of values for both plant canopy and interspaces, if different): Plant cover and litter is at 75% or greater of soil surface and maintains soil surface integrity. Soil Stability class is anticipated to be 4 or greater.

9. Soil surface structure and SOM content (include type and strength of structure, and A-horizon color and thickness for both plant canopy and interspaces, if different): Use Soil Series description for depth and color of A-horizon

10. Effect of plant community composition (relative proportion of different functional groups) & spatial distribution on infiltration & runoff: Grass canopy and basal cover should reduce raindrop impact and slow overland flow providing increased time for infiltration to occur. Healthy deep rooted native grasses enhance infiltration and reduce runoff. Infiltration is Moderately Rapid to Rapid.

11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): No compaction layer or soil surface crusting should be present.

12. Functional/Structural Groups (list in order of descending dominance by above-ground weight using symbols: >>, >, = to indicate much greater than, greater than, and equal to): Mid stature Cool Season Grasses > Mid Stature Warm Season Grasses > Short stature Grasses/Grasslike = Forbs > Shrubs

13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): Very Low

14. Average percent litter cover and depth : Average litter cover is 30-40% with depths of 0.25 to 1.0 inches

15. Expected annual production (this is all above-ground production, not just forage production):
2200 lbs/ac

16. Potential invasive (including noxious) species (native and non-native). List species which characterize degraded states and which, after a threshold is crossed, “can, and often do, continue to increase regardless of the management of the site and may eventually dominate the site”: Threadleaf sedge, Fringed sagewort, Prickly Pear, Broom Snakeweed, Silver sagebrush, and Species found on Noxious Weed List

17. Perennial plant reproductive capability: All species are capable of reproducing